

AMENDMENTS TO THE CLAIMS:

This listing of the claims below will replace all prior versions and listing of claims in this application.

1. (Currently amended) A ~~prophylactic or~~ therapeutic method for a disease associated with decreased expression of AOP-1 gene or AOP-1, comprising administering by direct injection or catheter-based delivery an expression vector comprising a nucleic acid and a promoter to heart cells of an individual, wherein said nucleic acid enhances the production of AOP-1 and is:

- (1) a nucleic acid encoding AOP-1; or
- (2) a nucleic acid that hybridizes under stringent conditions to a complementary strand of a nucleic acid encoding AOP-1 and encodes a polypeptide that retains the function of AOP-1.

Claims 2-6 (Cancelled)

7. (Currently amended) The ~~prophylactic or~~ therapeutic method of claim 1, wherein the disease associated with decreased expression of AOP-1 gene or AOP-1 comprises chronic heart failure, ischemic heart failure ~~[[,]]~~ or ischemic heart disease, ~~rheumatoid arthritis, neurodegenerative disease, hepatic disease or renal failure.~~

Claims 8-14 (Cancelled)

15. (Withdrawn) A diagnostic method for a disease associated with decreased expression of AOP-1 gene or AOP-1, comprising determining the expression level of AOP-1 gene or the production level of AOP-1 to make a diagnosis based on the expression level or production level.

16. (Withdrawn) The diagnostic method of claim 15, wherein the disease associated with decreased expression of AOP-1 gene or AOP-1 comprises chronic heart failure, ischemic heart failure, ischemic heart disease, rheumatoid arthritis, neurodegenerative disease, hepatic disease or renal failure.

17. (Withdrawn) A diagnostic agent or diagnostic kit for a disease associated with decreased

expression of AOP-1 gene or AOP-1, comprising a means for determining the expression level of AOP-1 gene or the production level of AOP-1 as a measure.

18. (Withdrawn) The diagnostic agent or diagnostic kit of claim 17, wherein the disease associated with decreased expression of AOP-1 gene or AOP-1 comprises chronic heart failure, ischemic heart failure, ischemic heart disease, rheumatoid arthritis, neurodegenerative disease, hepatic disease or renal failure.

19. (Withdrawn) A non-human transgenic animal suitable for use as a pathologic model of a disease associated with decreased expression of AOP-1 gene or AOP-1 wherein the production of AOP-1 is suppressed or the expression of AOP-1 gene is suppressed or AOP-1 gene is deleted.

20. (Withdrawn) The non-human transgenic animal of claim 19, wherein the disease associated with decreased expression of AOP-1 gene or AOP-1 comprises chronic heart failure, ischemic heart failure, ischemic heart disease, rheumatoid arthritis, neurodegenerative disease, hepatic disease or renal failure.

21. (Withdrawn) A transformed tissue or transformed cell suitable for use as a tissue model or a cell model of a disease associated with decreased expression of AOP-1 gene or AOP-1 wherein the production of AOP-1 is suppressed or the expression of AOP-1 gene is suppressed or AOP-1 gene is deleted.

22. (Withdrawn) The transformed tissue or transformed cell of claim 21, wherein the disease associated with decreased expression of AOP-1 gene or AOP-1 comprises chronic heart failure, ischemic heart failure, ischemic heart disease, rheumatoid arthritis, neurodegenerative disease, hepatic disease or renal failure.

23. (Withdrawn) A method for screening a material enhancing the expression of AOP-1 gene, a material enhancing the production of AOP-1, a material enhancing the function of AOP-1, or a combination thereof, comprising administering or adding a synthesized or genetically

engineered material or a natural material or a derivative thereof to the non-human transgenic animal or transformed tissue or transformed cell of claim 18 to detect the expression level of AOP-1 gene or the production level of AOP-1.

24. (Withdrawn) A method for screening a material enhancing the expression of AOP-1 gene, a material enhancing the production of AOP-1, a material enhancing the function of AOP-1, or a combination thereof, comprising contacting a synthesized or genetically engineered material or a natural material or a derivative thereof with (1) a transformed cell or an in vitro expression system having a transcriptional regulatory region of AOP-1 gene and AOP-1 gene or a reporter gene to detect the expression level of AOP-1 gene or the reporter gene or with (2) AOP-1 or a target molecule of AOP-1 to detect the amount of AOP-1 or the target molecule of AOP-1.

25. (Withdrawn) The screening method of claim 24, further comprising constructing an expression vector having a transcriptional regulatory region of AOP-1 gene linked upstream or downstream of the translation region of a reporter gene, then culturing a suitable host cell transfected with said vector, adding a synthesized or genetically engineered material or a natural material or a derivative thereof to the cultured cell and detecting changes in the expression level of the reporter gene or the production level of the reporter protein after a given period.

26. (Withdrawn) The screening method of claim 24, further comprising contacting a synthesized or genetically engineered material or a natural material or a derivative thereof with AOP-1 or a target molecule of AOP-1 to detect the amount of AOP-1 or the target molecule of AOP-1 bound or unbound to said material.

27. (Withdrawn) The screening method of claim 24, further comprising immobilizing AOP-1 or a target molecule of AOP-1 on a substrate and adding a synthesized or genetically engineered material or a natural material or a derivative thereof and AOP-1 or target molecule of AOP-1 to the immobilized AOP-1 or target molecule of AOP-1 to detect the amount of AOP-1 or the target molecule of AOP-1 bound or unbound.

28. (Withdrawn) The screening method of claim 24, further comprising immobilizing a synthesized or genetically engineered material or a natural material or a derivative thereof on a substrate and adding AOP-1 or a target molecule of AOP-1 to the immobilized material to detect the amount of AOP-1 or the target molecule of AOP-1 bound or unbound.

29. (Withdrawn) A method for screening a material enhancing the function of AOP-1, comprising contacting a synthesized or genetically engineered material or a natural material or a derivative thereof with AOP-1 or a target molecule of AOP-1 to determine the antioxidant or peroxynitrite scavenging activity of AOP-1.

30. (Withdrawn) The screening method of claim 29, further comprising adding a synthesized or genetically engineered material or a natural material or a derivative thereof and AOP-1 or a target molecule of AOP-1 to AOP-1 or the target molecule of AOP-1 to determine the antioxidant or peroxynitrite scavenging activity of AOP-1.

31. (Withdrawn) The screening method of claim 29, further comprising immobilizing AOP-1 or a target molecule of AOP-1 on a substrate and adding a synthesized or genetically engineered material or a natural material or a derivative thereof and AOP-1 or the target molecule of AOP-1 to the immobilized AOP-1 or target molecule of AOP-1 to determine the antioxidant or peroxynitrite scavenging activity of AOP-1.

32. (Withdrawn) The screening method of claim 29, further comprising immobilizing a synthesized or genetically engineered material or a natural material or a derivative thereof on a substrate and adding AOP-1 or a target molecule of AOP-1 to the immobilized material to determine the antioxidant or peroxynitrite scavenging activity of AOP-1.

33. (Currently amended) The method of claim 1, wherein said nucleic acid encoding AOP-1 is SEQ ID NO 1.

34. (Currently amended) The method of claim 1, wherein said nucleic acid encoding AOP-1 is SEQ ID NO 2.

35. (Currently amended) The method of claim 1, wherein said nucleic acid encoding AOP-1 is SEQ ID NO 3.

Claims 36-38 (Cancelled)